



# IT'S A FACT

## YOU SHOULD KNOW ABOUT WORK-RELATED MUSCULOSKELETAL DISORDERS

### Work-related Musculoskeletal Disorders (WMSDs)—

- Are caused by repeated stress to the body from risk factors in the workplace.
- Include a variety of injuries or illnesses to the body's muscles, tendons, ligaments, nerves, joints, cartilage, bones, discs, and supporting blood vessels.
- Occur over a period of time and can cause permanent damage to muscles, tendons, and tendon sheaths, and related bones, muscles, and nerves.
- Can cause permanent disability.



### WMSD Risk Factors

**Posture:** Deviation from a “neutral” posture adds unnecessary and excessive force to perform a movement. When muscles and joints are not in an ideal position for force development, they must increase their level of effort to perform the same activity.

**Force:** The greater the amount of force needed to perform an activity, the greater the risk of injuries occurring.

**Repetition:** Repeating the same movements time and time again quickly fatigues the muscles being used. Muscle fatigue can lead to unsafe acts and increased injury risk.

**Duration:** Duration is the amount of time an individual is subjected to a risk factor. Generally, the longer the duration, the greater the risk of injury.

**Contact Stress:** Exposure of the body to hard or sharp objects resulting in the reduction of blood flow to the area and an increase in injury potential.



**Temperature:** Cold temperatures tend to reduce blood flow to extremities causing individuals to lose their sense of touch resulting in greater force production. Hot temperatures reduce the amount of oxygen available to the muscles because blood is being diverted to the skin to cool the body.

**Vibration:** Exposure to vibration results in a reduction of blood flow to the area affected. Reduction in blood flow can cause atrophy, muscle fatigue, and vibration white finger syndrome as well as several other vibration-related illnesses.

### Common WMSDs

**Low back pain** is caused by repeated bending, lifting, and twisting of the lower back; sitting for long periods of time; standing on hard surfaces; or experiencing vibration over a period of time.

**Carpal tunnel syndrome** is a condition of pain and weakness in the hand caused by compression of the median nerve that passes through the wrist into the hand.

**Tendinopathy** describes the clinical conditions of tendons resulting from overuse. Symptoms include a combination of pain, swelling, and impaired performance.

**Lateral epicondylitis** (tennis elbow) is an overuse injury in which microtears occur on the outside of the elbow where the extensor tendons of the hand and wrist come together and attach to the lateral epicondyle. Lateral epicondylitis often results from repetitive movements such as grasping, pinching, and use of the power grip.

**Medial epicondylitis** (golfer's elbow) is an overuse injury in which microtears occur on the inside of the elbow where the flexor tendons of the hand and wrist come together and attach to the medial epicondyle. Medial epicondylitis often results from repeated forceful pronation of the forearm, wrist flexion, and grasping.

**De Quervain's disease** is an overuse tenosynovitis involving inflammation and degeneration of the tendons in the thumb that provide extension and abduction. Repetitive use of the thumb such as pinch grips and wrist radial-ulnar deviations are risk factors.

**Raynaud's phenomenon (white finger or vibration syndrome)** is caused by the reflexive constriction of the small arteries, which causes the fingers to become white (pale) and feel cold, numb, and tingly.



**This fact sheet is presented as guidance and should not be substituted for a professional medical examination and proper treatment of WMSDs.**

This fact sheet is a product of the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) Ergonomics Program, providing installation-level ergonomics services, consultation, and training for the U.S. Army. If you have questions, need assistance, are looking for training, or want to schedule an assessment of your workplace, contact a USACHPPM ergonomist at 410-436-3928 or [ArmyErgonomics@amedd.army.mil](mailto:ArmyErgonomics@amedd.army.mil).